

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING JULY 6, 2007

May 30, 2007

ITEM NUMBER: 7

SUBJECT: Underground Tank Program and MTBE Priority Sites

DISCUSSION

New information is shown in italics.

Water Board staff members are working on numerous petroleum underground storage tank (UST) cleanup cases involving MTBE. Some high profile sites or "worst case" problems are discussed below. Also attached to this report is a list of sites with MTBE in groundwater that gives an overall perspective of the regionwide problem.

The State Water Board's underground storage tank cleanup fund (Fund) is re-implementing a Five-Year Review process and is required to review every active Fund claim with a letter of commitment in active status for five or more years. Based on Fund staff's review of the case file, (1) the Fund will agree that a case should proceed on its present course, (2) work with Regional Water Board staff to modify the course to move a case toward closure, (3) request Regional Water Board staff close the case, or (4) present the case to the State Water Board for closure. In an October 11, 2006 memorandum, the Fund manager sent Regional Water Board staff a list of 15 cases that will undergo the initial Five-Year Review process. Five of the cases on the list have recently been closed, and Regional Water Board staff is closely watching two other cases as their contaminant concentrations approach cleanup goals.

On April 12, 2007, Fund staff issued their first Preliminary 5-Year Review Summary Report for the Jack Ranch Cafe, Highway 46, Cholame, San Luis Obispo County, outlining a list of factors they believe supported low risk case closure. Regional Water Board staff issued a May 4, 2007 memorandum stating that concentrations of 1,2-dichloroethane (EDC – a lead scavenger) are too high, the cafe's supply well is too close, and it will take too long for the EDC to naturally bio-decay to reach cleanup goals. The maximum concentration of EDC increased from 59 micrograms per liter ($\mu\text{g/L}$) in September 13, 2006, to 79 $\mu\text{g/L}$ on February 14, 2007, and so Regional Water Board staff concluded the memorandum stating that continued groundwater sampling is required. Regional Water Board and Fund staff have been working together and the Fund re-issued an Updated Preliminary 5-Year Review Summary Report on May 16, 2007, which includes recommendations for requiring additional sampling of the supply and monitoring wells, and requiring the responsible party to provide a workplan to investigate the source and extent of EDC and to propose corrective action to clean up EDC in groundwater. Regional Water Board staff (actually) issued a directive requiring this work to the responsible party on May 15, 2007. Regional Water Board and Fund staff members are working together (on this case and others on the 5-Year Review list) to clean up groundwater, and close cases when it is appropriate.

Speaking of cleaning up groundwater and closing cases, the Regional Water Board's UST unit and program reached a significant milestone in May 2007, having closed as many cases as we currently have remaining as open. There is still much work to do.

The list shows site names and addresses as well as the priority listing (Rank A, B, or C) based on State Board MTBE guidelines. Staff has required accelerated cleanup at some higher priority Rank A sites. Interim cleanup action is required as soon as technically feasible until full-scale cleanup activity can begin.

MTBE cleanup goals are typically set at the secondary maximum contaminant level (MCL) for drinking water of 5 micrograms per liter ($\mu\text{g/L}$), which is a taste and odor threshold. The primary MCL, based on threat to public health, is 13 $\mu\text{g/L}$.

The Regionwide MTBE Listing and High Priority Sites list, included as Attachment 1, contains the latest information provided by Santa Barbara County as of May 25, 2007.

HIGH PRIORITY SITES STATUS

Chevron Service Station, 2194 Main Street, Cambria, San Luis Obispo County **[John Mijares 805/549-3696]**

Chevron Cambria service station, located on the corner of Main Street and Burton Drive in Cambria, has been a Regional Board-lead groundwater investigation and cleanup case since December 1993. In 1995 the underground storage tank (UST) system was removed and service station ownership/operation was transferred from Chevron Products Company (Chevron) to an independent owner/operator who installed a new UST system.

Chevron is cleaning up a petroleum hydrocarbon discharge, including the fuel additive methyl tertiary-butyl ether (MTBE), from the original UST system. The discharge threatened groundwater in two Cambria Community Service District (CCSD) Wells, Nos. 1 and 3, which provide supplemental water to the community of Cambria.

As part of interim corrective action beginning in May 2000, Chevron continuously pumped MTBE contaminated water from four onsite wells. Currently, there are 15 shallow groundwater extraction wells. Beginning in November 2000, Chevron began full operation of a groundwater extraction and a high vacuum dual phase extraction system. Both systems operate continuously, except for periodic system upgrade, mechanical breakdowns, and system maintenance activities. Extracted and treated groundwater is stored in an onsite 15,000-gallon tank until being trucked offsite for disposal at the Santa Maria Wastewater Treatment Plant.

During the November 2001 technical work group meeting (with Regional Board staff, CCSD representatives, and Chevron representatives), the CCSD indicated the new temporary high school well was connected to the municipal drinking water supply. The CCSD's high school well is needed as an alternative water supply and the wellhead treatment system CCSD installed on their Santa Rosa Creek wells will enable their use in the event of an emergency.

On May 18, 2004, the Regional Board's Executive Officer rescinded Cleanup or Abatement Order (CAO) No. 00-28. The CAO required Chevron to provide CCSD with alternative water supply due to loss of CCSD's Well Nos. 1 and 3. The settlement agreement between CCSD and Chevron explicitly resolves all of CCSD's claims against Chevron, including claims for an alternative water supply.

Since the Last Staff Report:

The First Quarter 2007 Groundwater Monitoring and Remediation Status Report indicates the following:

- The monitoring wells within the plume boundaries continue to exhibit MTBE concentrations exceeding the cleanup goal of 5 micrograms per liter ($\mu\text{g/L}$); however, current concentrations have decreased significantly compared to historical maximum values. The first quarter 2007 maximum MTBE concentration was 1,200 $\mu\text{g/L}$. The shallow-zone MTBE isoconcentration map is shown on Attachment 2.
- Monitoring wells historically known to be located beyond the plume boundaries continue to exhibit non-detectable concentrations of MTBE.
- Neither petroleum hydrocarbons nor fuel oxygenates were detected in any of the samples collected from shallow groundwater samples from the northern bank of Santa Rosa Creek (three sampling stations) during this quarter.
- The high-vacuum dual phase extraction system and the groundwater extraction and treatment system were operated briefly during the reporting quarter for sample collection.
- Investigation results of the vacuum truck roll-over incident in August 2006 identified driver fatigue and nighttime driving as primary contributing factors in the roll-over incident. Chevron has contracted with a local transporter (Pacific Petroleum Corporation of Santa Maria) to resume hauling of treated groundwater to the City of Santa Maria wastewater plant. Trucking of treated groundwater was re-instated on March 28, 2007, and operation of the treatment systems will begin as soon as on-site treated water storage capacity becomes available.

California Water Service Company Supply Wells, Pajaro Street and Bridge Street, Salinas, Monterey County [John Goni 805/542-4628]

Water Board staff was notified by a Salinas water purveyor, California Water Service Company (CWSC), that two supply wells in the Salinas area showed detections of the fuel oxygenate MTBE. Water Board staff's review of known leaking underground tank cases near the wells indicated that there are no active cases with high concentrations of MTBE. Further investigation revealed a gasoline distributor (with 100,000 gallons of fuel products storage) close to the well, but a subsequent site investigation showed no evidence of a fuel release to underlying groundwater. Staff continued its investigation and directed other permitted underground tank facilities without previously reported leaks to perform groundwater investigations. These investigations failed to find a release of MTBE of significant size to account for the contaminant in the supply wells.

Surface water samples from the Salinas Reclamation Ditch, collected by Water Board staff, near the CWSC supply wells did not show detectable concentrations of gasoline constituents or MTBE. As suggested by Water Board members, staff investigated a former packing plant near the CWSC supply wells. A joint investigation by the Monterey County Environmental Health Department (MCEHD) and Water Board staff concluded former packing houses in this area are not likely the source of MTBE contamination because (1) of the small tank sizes, (2) the dates of tank closures precedes significant use of MTBE, and (3) hydrocarbons were not found in soil beneath the removed tanks.

Water Board staff continued to coordinate the investigation with other agencies in search of the source of MTBE. A review of the State Water Resources Control Board's implementation of enhanced leak detection testing requirements for all underground tank facilities within

1000 feet of water supply wells did not identify any new potential sources of MTBE. The MCEHD agreed to increase inspections of all nearby permitted underground and aboveground tank facilities to ensure compliance; no operational violations were found. The Monterey County Water Resources Agency performed additional groundwater analytical testing from nearby production wells up and crossgradient of the CWSC wells, and did not detect any MTBE. CWSC information and Water Board staff inspections confirmed that gasoline has not been stored at their supply well locations. CWSC performed depth discrete sampling of Well Station 13-02 in December 2004. The sampling results indicated that the shallower/180-foot aquifer contains the highest concentrations of MTBE.

In an effort to expand the investigation, Water Board staff assisted the Monterey County Water Resources Agency in applying to the State Water Resources Control Board for Cleanup and Abatement Account money to fund additional groundwater sampling. The Water Board adopted Resolution Number R3-2005-0118 supporting the Monterey County Water Resources Agency's application for Cleanup and Abatement Account funds on October 21, 2005. At that time, State Board staff indicated that all other sources of possible funding had to be exhausted first, and that the California Department of Health Services (DHS) has money in the Drinking Water Treatment and Research Fund specifically for water purveyors to investigate drinking water sources impacted by MTBE releases.

The CWSC informed Water Board staff on July 24, 2006, that they do not have the staff resources necessary to pursue the DHS funding. On September 5, 2006, State Board staff advised that it would be appropriate for the Monterey County Water Resources Agency to resubmit their application. The Monterey County Water Resources Agency resubmitted their application on October 2, 2006.

At its January 18, 2007 meeting, the State Water Board approved the allocation of cleanup and abatement funds to perform additional sampling. The paperwork to establish a contract between the Central Coast Water Board and Monterey County Water Resources Agency has been submitted to the State Water Board's contracts office.

The contract has been prepared, reviewed by Central Coast Water Board staff and Monterey County Water Resources Agency staff, and signed copies have been forwarded to the contracts office in Sacramento. We are now awaiting final approval by the Department of General Services' Office of Legal Services, hopefully by June 30, 2007. In anticipation of the contract, Central Coast Water Board staff is working with Monterey County Water Resources Agency staff to develop a history and information package for prospective contractors to speed up the bidding process, allow innovative approaches for the investigation, and to prevent duplication of previous efforts.

Camp Evers Combined Site (Four Gasoline Service Stations) Mount Hermon Road and Scotts Valley Drive, Scotts Valley, Santa Cruz County [Wei Liu 805/ 542-4648]

Petroleum hydrocarbons including benzene, 1,2-DCA and MTBE have been detected in groundwater beneath the Tosco, Shell, BP, and Chevron service stations located at the intersection of Mount Hermon Road and Scotts Valley Drive. An expanded site plan is illustrated on Attachment 3.

Previous onsite corrective actions at the Tosco, Shell, and BP sites included soil vapor extraction, air sparging, dual phase extraction, and/or groundwater extraction to remediate the MTBE plume. Chevron continued remediation of the benzene plume. The onsite corrective actions have successfully removed MTBE and other gasoline constituents from

groundwater directly beneath the four service station sites; therefore, onsite remediation has been discontinued at all four sites.

The MTBE plume mass appears to have "detached" from the original plume, and migrated to a downgradient offsite location beneath the King's Village Shopping Center with a maximum concentration of 38,300 micrograms per liter ($\mu\text{g/L}$) detected in well CEMW-6 in May 1999. In addition, the Manana Woods water supply well was impacted by benzene and MTBE and extracted water and is being routed through a wellhead treatment facility to remove the contaminants.

The responsible parties installed a permanent groundwater pumping and treatment system at the King's Village Shopping Center in November 2002, to remediate and hydraulically control the detached plume. Treated groundwater is discharged by way of the storm sewer system to surface water (ultimately Bean Creek) under the General NPDES Permit for highly treated groundwater.

First Quarter 2007 groundwater samples collected on February 6 through February 9, 2007, indicate maximum MTBE concentrations of 19 $\mu\text{g/L}$ in onsite monitoring well Tosco RW-1, and 120 $\mu\text{g/L}$ in off-site monitoring well CEMW-19B. A maximum concentration of 460 $\mu\text{g/L}$ tert-butyl alcohol (TBA) was detected in offsite monitoring wells CEMW-16 and CEMW-19B. MTBE concentrations in downgradient offsite well CEMW-6, which historically had the highest MTBE concentrations, have been reduced from a maximum of 38,300 $\mu\text{g/L}$ in May 1999 to 1.4 $\mu\text{g/L}$ in February 2007. In addition, MTBE concentrations in downgradient offsite well CEMW-16, which is near the groundwater pumping and treatment system, were reduced from 4,710 $\mu\text{g/L}$ in January 2001 to 1.5 $\mu\text{g/L}$ currently. These results suggest that the downgradient remediation system is effective in removing the contaminants.

The downgradient offsite remediation system has removed approximately 22.4 million gallons of water, 334.6 pounds (lbs) of TPH, 11.3 lbs of benzene, 66.6 lbs of MTBE, and 27.4 lbs of TBA since November 26, 2002.

Quik Stop Market No. 78, 5505 Soquel Drive, Soquel, Santa Cruz County [Tom Sayles 805-542-4640]

Quik Stop Market No. 78 (Quik Stop) is an operating gasoline service station located on the corner of Soquel Drive and Hardin Way in Soquel. The site has been a Regional Board-lead groundwater investigation and cleanup case since June 1999.

The approved corrective action plan consisting of a permanent dual-phase (soil vapor and groundwater) treatment system has been operating since July 5, 2002. The treated groundwater is discharged to the sanitary sewer under a County of Santa Cruz Permit (No. 00002829) and the catalytic oxidizer treatment system operates under a Monterey Bay Unified Pollution Control District air permit (No. 11054).

Three additional vapor extraction wells were installed in December 2003, in the vicinity of MW-3, to enhance cleanup system effectiveness. In addition, MW-3 was overdrilled and converted into a 4-inch diameter well to enhance groundwater extraction efficiency. The highest concentration of MTBE was 230,000 $\mu\text{g/L}$ in monitoring well MW-4 (near the source area) on March 2, 2000.

First Quarter 2007 groundwater samples were collected on March 7, 2007. A maximum concentration of 53 $\mu\text{g/L}$ MTBE was detected in onsite monitoring well MW-4R. A maximum concentration of 3,400 $\mu\text{g/L}$ tert-butyl alcohol (TBA) was detected in onsite extraction well

RW-2. The total petroleum hydrocarbons as gasoline, benzene, and MTBE concentration contour maps show the highest concentrations to be near the fuel tank complex which is consistent with past quarters, and a comparison with past concentration contour maps shows that the plume continues to decrease in size. Quik Stop continues to sample Nobel Creek on a monthly basis at four downgradient locations. MTBE and TBA were not detected in any creek samples collected on April 10, 2007.

Groundwater extraction pumps continue to operate in extraction wells RW-2, RW-3, and MW-4R and cleanup is ongoing.

Los Osos Valley Garage Former Bear Valley Chevron, 1099 Los Osos Valley Road, Los Osos, San Luis Obispo County, [Corey Walsh 805/542-4781]

Golden State Water Company (Los Olivos No. 3) and the Los Osos Community Services District (10th Street) municipal water wells are located near the site. Los Olivos No. 3 continues to be sampled monthly, while the 10th Street well is sampled once every three years.

The offsite treatment system was shut down in June 2005, and post treatment verification monitoring was conducted in January 2006, July 2006, and April 2007. The April 2007 sampling event included sampling of key multi-level monitoring well chambers and preliminary draft sample results indicated maximum contaminant levels of 290 micrograms per liter ($\mu\text{g/L}$) total petroleum hydrocarbons as gasoline, 4.2 $\mu\text{g/L}$ benzene, 22 $\mu\text{g/L}$ methyl tertiary-butyl ether (MTBE), and 72 $\mu\text{g/L}$ tertiary-butyl alcohol (TBA).

Water production from the Los Olivos No. 3 and 10th Street wells continues to run at normal production rates. Monitoring results for the Los Olivos No. 3 well continue to be less than 0.5 $\mu\text{g/L}$ for MTBE (last sampled April 18, 2007); MTBE has not been detected since June 2003. Sample results for the 10th Street well (last sampled February 7, 2006) continue to remain below detection limits (less than 0.2 $\mu\text{g/L}$) for MTBE and (less than 2.0 $\mu\text{g/L}$) for TBA.

TPHg, benzene, and MTBE concentrations appear stable and to be attenuating to below or near cleanup goals; TBA concentrations, however, have increased. Water Board staff will evaluate this information upon receipt of the final report, and will outline options for further groundwater monitoring, or possibly bringing the case to closure.

ATTACHMENTS

1. Region wide MTBE Listing and High Priority Sites
2. MTBE Plume Map, Cambria Chevron
3. Expanded Site Plan; Camp Evers Scotts Valley